DELIVERY POLICY TOOL

FIELD OF THE INVENTION

[0001] The present invention relates generally to mobile communication systems and more particularly to systems and methods for controlling the distribution of data to mobile platforms such as commercial aircraft.

BACKGROUND OF THE INVENTION

[0002] Broadband data and video services have previously been unavailable to users onboard mobile platforms such as aircraft, ships, trains, automobiles, and other modes of mass transportation. While the technology is available to deliver such services to various forms of mobile platforms, past solutions have been generally expensive, of a low data rate, and/or available only to limited markets of government or military users and a few high-end maritime markets (e.g., cruise ships).

[0003] Previously developed systems that have attempted to provide data services to mobile platforms have done so with only limited success. One major obstacle has been the high cost of access to broadband data services, along with the limited capacity of previously developed systems, which is insufficient for a plurality of mobile platforms collectively carrying hundreds, or even thousands, of individuals who each may be simultaneously requesting different data services. Furthermore, existing mobile communications systems are generally not readily scalable to address the demands of the traveling public.

[0004] Current mobile platform connection methods are inherently narrow band and restrict the flow of data to the point where common networking tasks are impossible. Typically, such connectivity is achieved through the use of a standard computer telephone modem between the computer of the user and the air-ground or ship-shore telephony system. In such a system, each user obtains exclusive use of a full communications channel for the duration of his/her networking session and effectively prevents others from using that portion of the telephony system.

[0005] Another known mobile communication service generally provides pre-stored worldwide web content to users on a mobile platform. The service is anticipated to incorporate a server located on a mobile platform to provide its stored content to users on the mobile platform through a simple touchscreen interface. The content located on the server would be updated once every few weeks while the mobile platform is in an inactive mode, such as when an aircraft is parked at an airport gate or a ship is docked at a port. The update of the data on the mobile platform would be accomplished through the loading of CD ROMs (Compact Disc Read Only Memory) or swapping of hard drives on the server. Although the content stored on the mobile platform with such a service may be varied, it will never be timely and up to date.

[0006] In view of the foregoing, a significant need exists to provide a system and method for providing live and up to date data communication to users onboard mobile platforms. More specifically, a need exists to provide Internet data communications, (e.g., web page content delivery), video data services, and audio

data services, among others, in a prioritized and timely fashion to a variety of users onboard a plurality of mobile platforms.

SUMMARY OF THE INVENTION

[0007] In one preferred form, the present invention provides a system for distributing content to mobile platforms that generally comprises a database containing rules for distribution of the content and a policy algorithm in communication with the database whose output is transmitted to a content delivery system to control distribution of content to the mobile platforms. Accordingly, deliveries and updates to content for mobile platforms such as Internet web page content, video data, and audio data, is prioritized by the system of the present invention. For example, the policy algorithm may prioritize one set of users over another or vary web page updates to suit the needs of a particular user or commercial airline.

[0008] The policy algorithm is further in communication with a link management system that provides information regarding available mobile platforms, or aircraft that are currently in route and are requiring content delivery. Additionally, the policy algorithm is in communication with a plurality of buffers that provide increased bandwidth utilization. Generally, the buffers are monitored by the policy algorithm to determine the percent loading on each buffer and thus how content is to be redistributed to the mobile platforms.

[0009] The database and the policy algorithm are preferably located within a ground control station that communicates with the mobile platforms via

satellite communications as described in co-pending application serial number 09/639,912 entitled "Method and Apparatus For Providing Bi-Directional Data Services and Live Television Programming to Mobile Platforms," filed on August 16, 2000, which is assigned to the assignee of the present application and is hereby incorporated by reference in its entirety.

[0010] In another preferred form, a method of distributing content to a mobile platform is provided, wherein the content is prioritized and delivered to a variety of users onboard a plurality of mobile platforms based in part on execution of rules by the policy algorithm. Generally, output from the policy algorithm is transmitted to the content delivery system, wherein prioritized content is communicated from the policy algorithm to the content delivery system, and the content is delivered accordingly to the mobile platforms based on the rules within the database and the priorities determined by the policy algorithm. Further, the method comprises the steps of providing information regarding available mobile platforms from the link management system in addition to monitoring the plurality of buffers to determine when content is to be redistributed.

[0011] Further areas of applicability of the present invention will become apparent from the detailed description provided hereinafter. It should be understood that the detailed description and specific examples, while indicating the preferred embodiment of the invention, are intended for purposes of illustration only and are not intended to limit the scope of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The present invention will become more fully understood from the detailed description and the accompanying drawings, wherein:

[0013] Figure 1 is a block diagram of a system for distributing content to a mobile platform.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0014] The following description of the preferred embodiments is merely exemplary in nature and is in no way intended to limit the invention, its application, or uses.

[0015] Referring to the drawings, a system for distributing content to a mobile platform according to the present invention is illustrated and generally indicated by reference numeral 10 in Figure 1. As shown, the system 10 comprises a policy algorithm 12 in communication with a database 14 and a content delivery system 16, wherein the content delivery system 16 manages and controls delivery of content 18 to a mobile platform 20, or a plurality thereof.

[0016] Although the detailed description herein is directed to an in-flight system delivering content to passengers on commercial aircraft, the invention is also applicable to other modes of mass transit such as ship, train, bus, and others, and the reference to aircraft should not be construed as limiting the scope of the present invention. Further, the term "content" as used herein is intended to include communications data such as Internet web content, audio data such as in-flight

music or boarding messages, video data such as in-flight entertainment, or cellular data, among others.

[0017] The policy algorithm 12 is executed in part based on a set of rules within the database 14 for distribution of the content 18. For example, the rules may prioritize one set of users over another such as first class passengers over coach or one airline over another, or may vary web page update rates to suit the needs of a particular user or set of users. Further, the rules may establish specific mobile platforms as having priority for a particular type of content. Accordingly, the content delivery system 16 delivers content that has been prioritized by the policy algorithm 12 to the mobile platform 20 based on a flexible set of rules within the database 14, which results in more efficient delivery of data to a plurality of mobile platforms 20.

[0018] As further shown, the policy algorithm 12 is in communication with a link management system 22. The link management system 22 provides information as to which mobile platforms 20 are available to receive content 18. Accordingly, the policy algorithm 12 utilizes such information, along with the rules within the database 14, in order to prioritize delivery of the content 18 to the content delivery system 16. For example, the database 14 may contain a rule that an aircraft having a certain tail number requires only certain types of content 18. Further, the policy algorithm 12 may be executed such that certain aircraft tail numbers that require a particular type of content, e.g. specific Internet web sites, are given top priority. Therefore, any number and combination of rules within the database 14 and priorities within the policy algorithm 12 may be employed to control

distribution of content 18 to the mobile platform 20 according to specific application requirements.

[0019] As further illustrated, the policy algorithm 12 is also in communication with a plurality of routers 24. Generally, the routers 24 distribute data that is being transmitted through various RF (radio frequency) links to satellites that communicate with ground control stations. In operation, the policy algorithm 12 monitors the routers 24 to determine the loading on each buffer, and the policy algorithm 12 may then execute priorities according to such loadings. For example, content 18 may only be redistributed to the content delivery system 16 if the buffers are at 50% or less of their capacity. As a result, improvements in bandwidth utilization may be realized to facilitate efficient delivery of content 18 to the mobile platform 20.

[0020] Accordingly, a system and method for distributing content to a mobile platform is provided, wherein content is delivered to a plurality of mobile platforms in a prioritized order based on a number of inputs from, for example, rules within a database, a link management system, and a plurality of routers. As a result, content is delivered to users onboard mobile platforms in a timely and cost-efficient manner.

[0021] The description of the invention is merely exemplary in nature and, thus, variations that do not depart from the substance of the invention are intended to be within the scope of the invention. Such variations are not to be regarded as a departure from the spirit and scope of the invention.